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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,610	10/24/2003	Izhak Baharav	10991144-5	8820

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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, CO 80527-2400

EXAMINER

HESS, DANIEL A

ART UNIT	PAPER NUMBER
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2876

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/692,610

Applicant(s)

BAHARAV ET AL.

Examiner

Daniel A Hess

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Remarks

1. The Examiner acknowledges that this application is a divisional of US 09/579,070 filed 05/25/2000.

Specification

2. The disclosure is objected to because of the following informalities: In a number of places, where the applicant would intend to have certain mathematical symbols, a '?' appears instead. It may have resulting from a word-processing problem. Although other instances may be present, this appears notably on pages 15, 16, 17, 18 and 21. One example page is page 16: on line 3, the phrase '4 ? 4 pixels (2 ? 2 matrices)' should be corrected. On line 17 of the same page, the expression 'Q ? 25 ? 31 ? 775' needs to be corrected; on line 20, the expression '25 ? 16 ? 2 ? 800' needs to be correction. In fact, the entire document should be surveyed for the above type of error.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 15-17 and 19 rejected under 35 U.S.C. 102(b) as being anticipated by Curry (US 5,710,636). Curry teaches a method for generating a visually significant barcode having all of the elements and means as recited in claims 15-17 and 19. For example, Curry teaches the following:

Re claim 15: Firstly, the Examiner points out that by barcode, what is clearly meant is 'two dimensional barcode' since barcode can also refer to a one-dimensional set of bars arranged linearly. See figure 1 for a description of an image generation system (column 3, line 30-column 4, line 5): raw images come from an image generator 12 -- either an image file from a computer or a scanned image. This is an $M \times N$ pixel image. Partitioning into a plurality of $K \times K$ image matrices occurs via refs 10 and 14, which provide the appropriate patterns to achieve a desired darkness level. See figures 2a-2c. The message comes in, in the form of 'digital data' into the pattern rotator 16, which consists of plural fields, each giving information needed to provide a rotation for a particular 'cell'. The set of maps is shown in figures 2a-2c; the selection of a map is based on the content of the message (Digital Data of figure 1). The result is a two dimensional matrix such as is shown in figure 3 that have embedded data.

Re claim 16: The original image is (column 3, line 38) a grey-scale image.

Re claim 17: See figure 4: a gray-level image is clearly shown, with black, white, and levels in between. See last line of abstract: the thickness of halftoning lines can be adjusted to adjust the gray level.

Re claim 19: See figure 4: Cluster dithering is shown.

5. Claims 15-17 and 20-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Cass et al. (US 5,946,414). Cass et al. teaches a system for encoding and decoding a visually significant barcode having all of the elements and means as recited in claims 15-17 and 20-21.

For example, Cass teaches the following:

Re claim 15: The principal difference between the teachings of Cass and Curry (above) is that Curry teaches a system that is intended to be decodable visually, while Cass teaches a system that is to be decoded by machine. See especially figure 2: Each $K \times K$ image matrix has multiple options that have the same color, and the selection from among these choices is what constitutes the encoding of the message. Figure 1 shows all of the steps; figure 4 shows the message array and how it translates, view image matrices, into a message image. As is clear in the description (column 6, lines 40-65), the *average* color in a particular area is unchanged. Data is inserted from the message matrix in a way that does not affect the average appearance of an image.

Re claim 16: The image can be a color image.

Re claim 17: As figure 6 shows, multiple color levels are clearly possible.

Re claim 20: Cass teaches (see figure 44; column 30, lines 3-45) that in a machine decode process, individual subimages 32 are captured, in which one of a set of (in this case $L=two$) possible barcode matrices is found and the message matrix 805 is extracted.

Re claim 21: Locating the barcode image is a crucial step (column 30, lines 45-67).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 18 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cass as applied to claims 15 and 20 respectively, above, in view of Rhoads (US 6,345,104).

Cass fails to teach or suggest the use of one or more fiducial marks to aid the proper machine decoding of the message embedded in the image.

Rhoads teaches (figures 7a and 7b; column 7, line 19 to column 8, line 26) the use of calibration tiles intermixed with tiles containing data an overall watermark to enable calibration for a more-precise and less error-prone read.

In view of Rhoads' teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the calibration cells (i.e. fiducial marks) of Rhoads in the teachings of Cass to achieve a decode that is more accurate by having 'test data' for calibration prior to decoding the real message.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tow (US 5,315,098) could also be seen to anticipate some of the Instant claims. See figures 1 through 3c especially. Many other patents which cite Tow are relevant as well.

Regarding fiducial marks (claims 18 and 22), Cass does teach (columns 30 and 31) the use of what are essentially landmarks in the image to guide decoding. This should be noted by the applicant.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel A Hess whose telephone number is (571) 272-2392. The examiner can normally be reached on 8:00 AM - 5:00 PM M-F.

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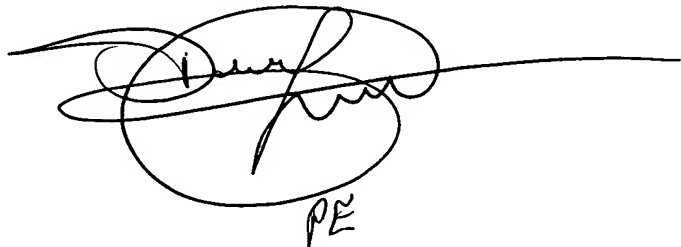
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G Lee can be reached on (571) 272-2398. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A stylized handwritten signature in dark ink, appearing to be 'DAH'.

DH

Daniel A Hess
Examiner
Art Unit 2876

A handwritten signature in dark ink, appearing to be 'Daniel A Hess', with a long horizontal line extending to the right. Below the signature, the letters 'PE' are handwritten.